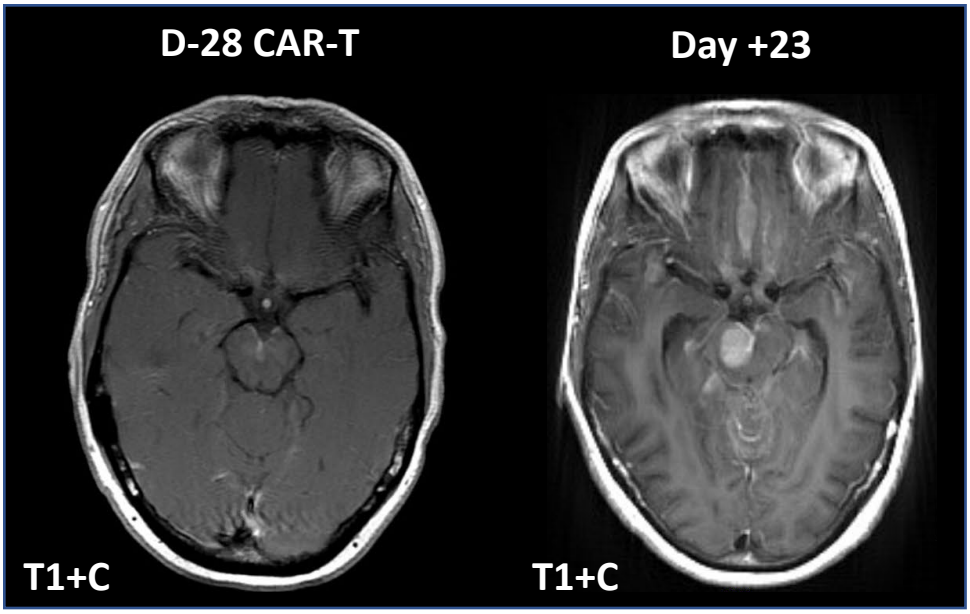
Supplemental Figure 1

A



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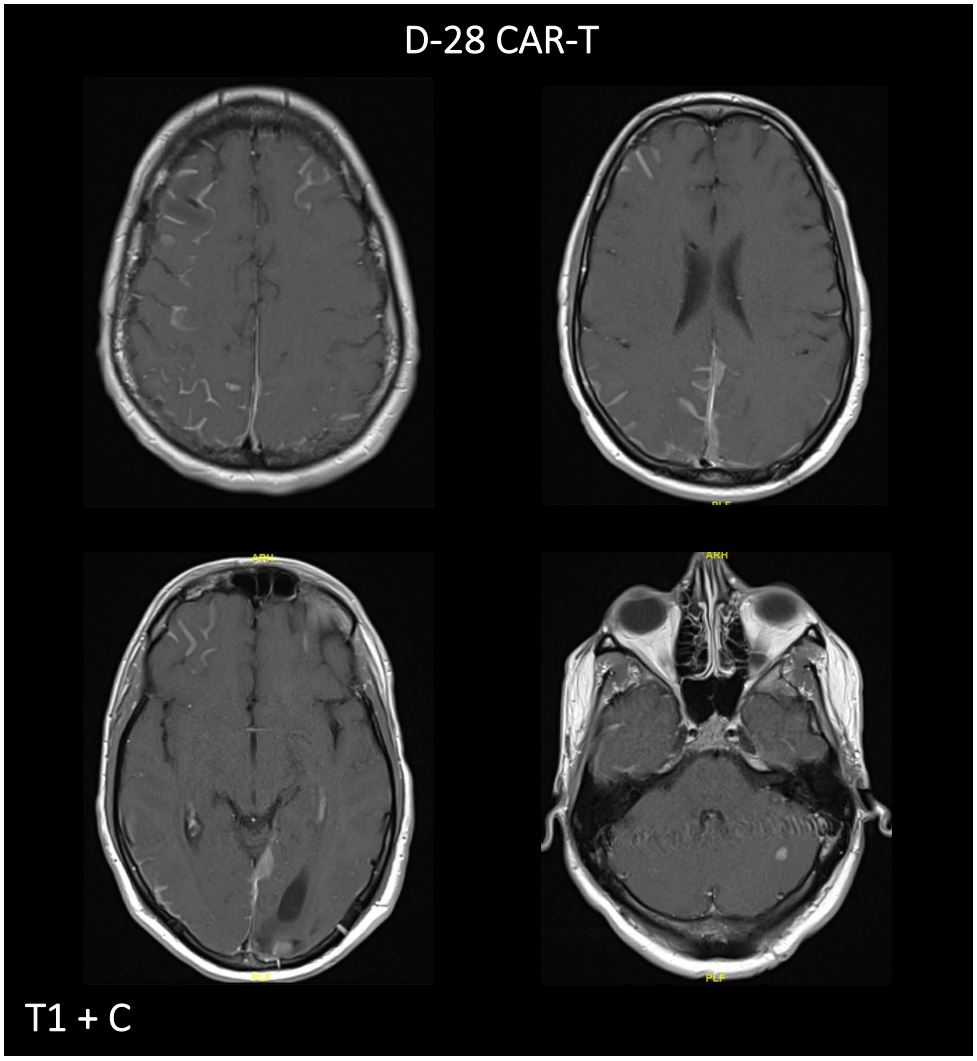
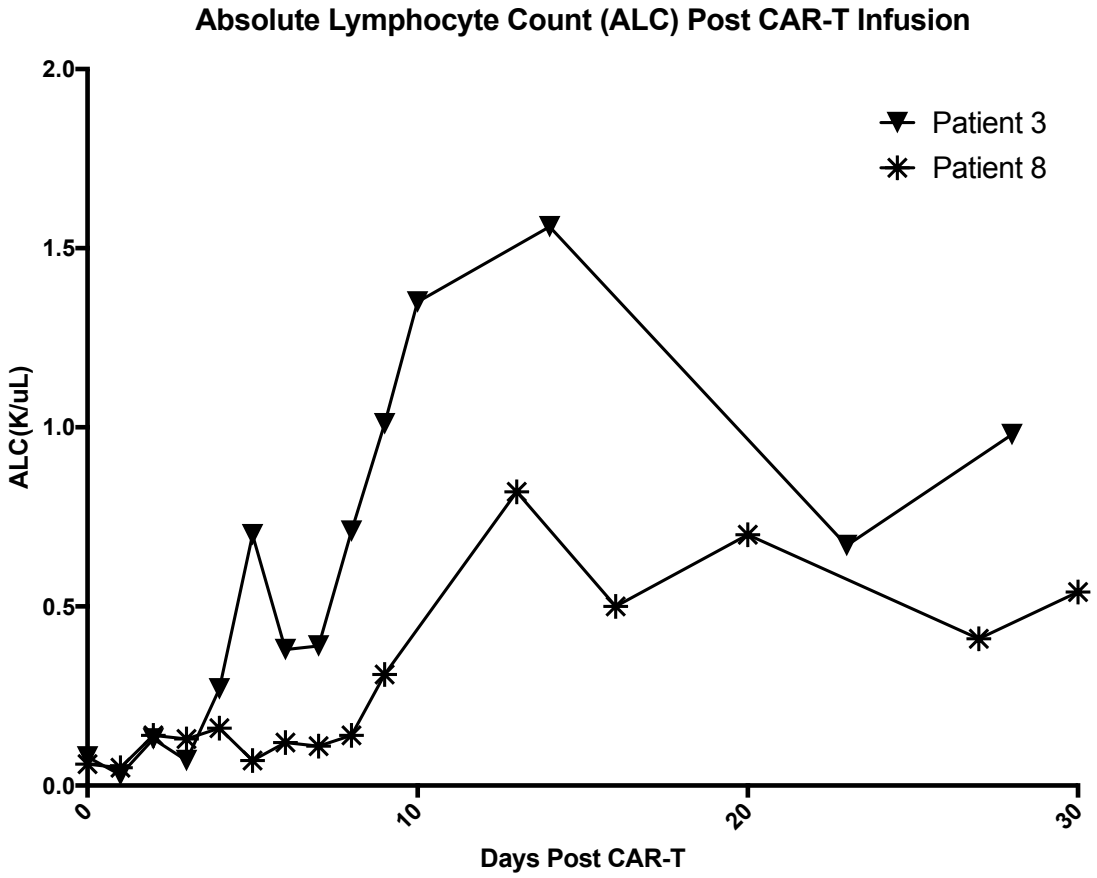


Supplemental Figure 2



Supplemental Figure 3

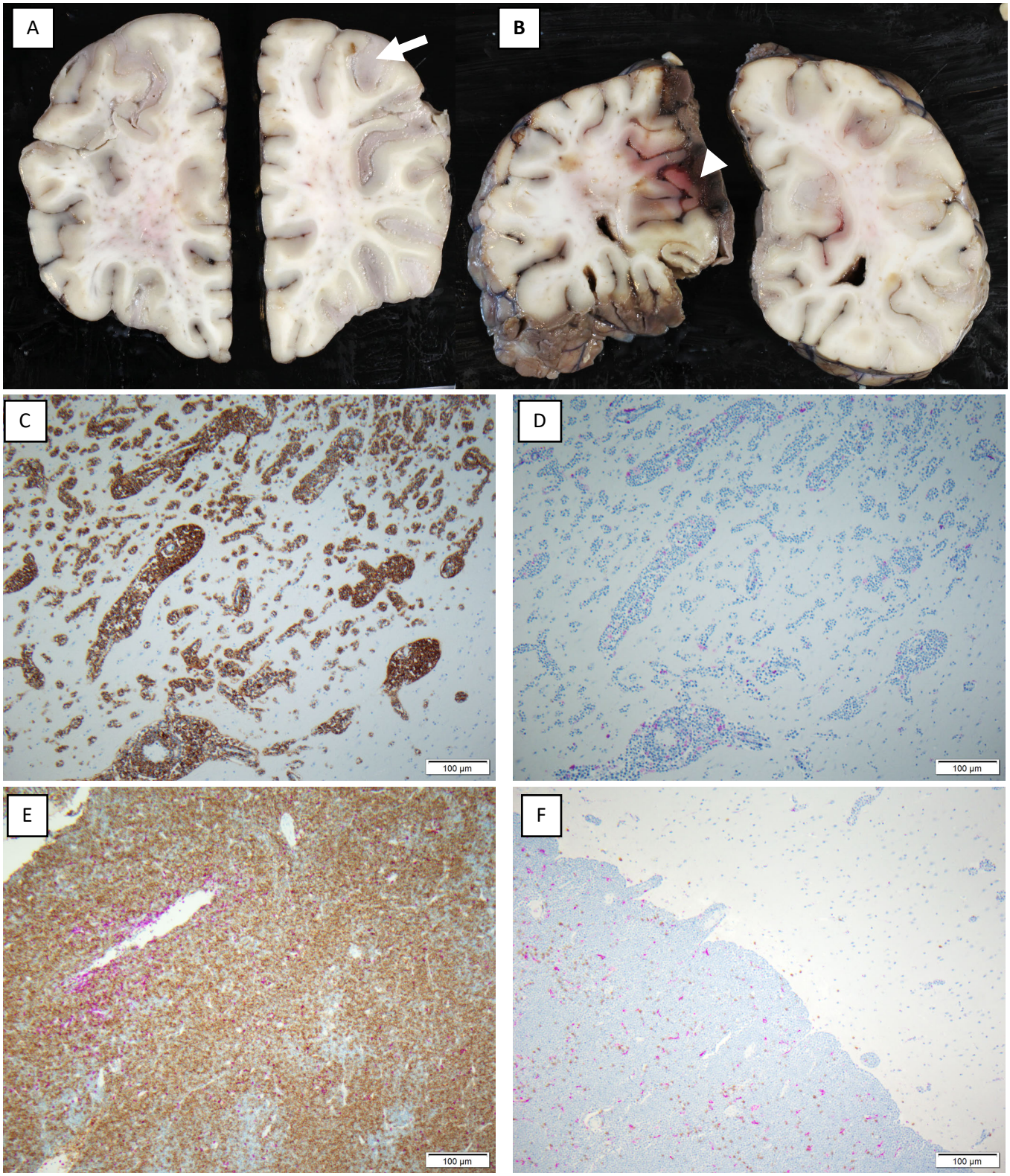


Figure S1: Pre-infusion MR imaging of Patients 1 and 5.

A) Brain MRI of patient 1 one month prior to CAR-T infusion compared to D+23 at time of rapid clinical decline demonstrating progressive disease involving critical midbrain structures. B) MRI of patient 5 one month prior to CAR-T infusion demonstrating significant disease burden including dural, diffuse leptomeningeal and nodular involvement of the left cerebellar hemisphere despite ongoing CNS directed therapy

Figure S2: Absolute Lymphocyte Counts Following Tisagenlecleucel Infusion.

Absolute lymphocyte counts of patients 3 and 8 following lymphodepleting chemotherapy noting lymphocyte expansion despite absence of systemic disease. D+7 clinical flow was performed on patient 3 and identified 89.4% CD3+ T cells with a CD4:CD8 ratio of 1.06

Figure S3: Autopsy findings.

(A, B) Macroscopic examination: coronal sections of the brain (patient 5) demonstrate extensive bilateral gray discoloration and expansion of the cerebral sulci by lymphoma, involving the entire cerebrum from the frontal lobes (A, arrow) to the occipital lobes (B, with hemorrhagic transformation, left parietal lobe, arrowhead). (C, D) Microscopic examination (patient 5): Immunohistochemical stains demonstrate extensive involvement of the leptomeningeal space by neoplastic CD20+ B-cells (C), with rare CD3+ T-cells (D, red chromogen). (E, F) Microscopic examination (patient 1): Immunohistochemical stains with double labeling demonstrate extensive leptomeningeal involvement by CD20+ B-cells (E, brown chromogen) admixed with infiltrating CD3+ T-cells (E, red chromogen). Additionally, together with the tumor infiltrating

CD3+ T-cells (F, brown chromogen), CD68+ macrophages can be seen within the tumor mass (F, red chromogen), without significant extension into the surrounding brain parenchyma.